

C L A I M S

1. A mass rescue system comprising:
at least one upper rotatable support;
5 at least one lower rotatable support disposed below said at least one upper rotatable support;
at least one elongate flexible element wound about said at least one upper and at least one lower rotatable supports; and
at least first and second rescue platforms mounted on said at least one elongate
10 flexible element at locations therealong arranged with respect to said upper and lower rotatable supports such that downward motion of said first rescue platform produces concomitant upward motion of said second rescue platform and vice versa,
said first and second rescue platforms, when loaded to different weights, being
operative to undergo upward and downward motion produced by gravitational
15 acceleration and without requiring an external energy source.
2. A mass rescue system according to claim 1 and also comprising a dynamic resistance device operative to employ potential energy of said at least first and second rescue platforms for braking downward motion thereof.
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3. A mass rescue system according to either of claims 1 and 2 and wherein said at least one elongate flexible element comprises at least one first elongate flexible element which is wound over said upper rotatable support and at least one second elongate flexible element which is wound under said lower rotatable support.
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4. A mass rescue system according to either of claims 1 and 2 and wherein said at least one elongate flexible element comprises a looped elongate element.
5. A mass rescue system according to any of the preceding claims and also
30 comprising at least one guiding element which is operative to guide said first and second rescue platforms.

6. A mass rescue system according to claim 5 and wherein said at least one guiding element comprises at least one rigid element.
- 5 7. A mass rescue system according to claim 5 and wherein said at least one guiding element comprises at least one elongate flexible element.
8. A mass rescue system according to any of the preceding claims and also comprising a counterweight operative to provide initial downward motion under
10 gravitational acceleration and without requiring an external energy source.
9. A mass rescue system according to any of the preceding claims and wherein at least one of said first and second rescue platforms comprises a cabin.
- 15 10. A mass rescue system according to any of claims 4 – 8 and wherein at least one of said first and second rescue platforms includes at least one guide assembly which rides along said at least one guiding element and which is operative to reduce transverse displacement of said rescue platform.
- 20 11. A mass rescue system according to any of the preceding claims and wherein at least one of said first and second rescue platforms also comprises a safety assembly operative to prevent free-fall of said rescue platform.
12. A mass rescue system according to any of the preceding claims and also
25 comprising at least one stair unit associated with said first and second rescue platforms.
13. A mass rescue system according to any of the preceding claims and wherein at least one of said first and second rescue platforms also comprises at least one door and at least one door safety element operative to prevent vertical motion of said rescue platform
30 while said at least one door is open.

14. A mass rescue system according to any of the preceding claims and wherein at least one of said first and second rescue platforms also comprises at least one of a first aid kit and a communications device.
- 5 15. A mass rescue system according to any of claims 2 - 14 and wherein said dynamic resistance device is operative to slow vertical motion of at least one of said first and second rescue platforms to a speed which is less than a predetermined speed.
- 10 16. A mass rescue system according to any of claims 2 - 15 and wherein said dynamic resistance device also comprises a reducing gearbox and a fan descender which are operative to slow the vertical motion of said first and second rescue platforms.
- 15 17. A mass rescue system according to any of claims 16 and wherein said dynamic resistance device also comprises a position dependent gear controller operative to control the gear ratio of said reducing gearbox as a function of a vertical position of at least one of said first and second rescue platforms.
- 20 18. A mass rescue system according to claim 17 and wherein said dynamic resistance device also comprises a visually sensible position indicator associated with said position dependent gear controller.
- 25 19. A mass rescue system according to any of claims 2 – 18 and wherein said dynamic resistance device also comprises a mechanical brake assembly operative, when in a first position, to prevent vertical motion of said first and second rescue platforms.
20. A mass rescue system according to claim 19 and wherein said mechanical brake assembly also comprises a handle which is selectably movable between said first position and a second position to enable a user to selectably operate said system.

21. A mass rescue system according to any of the preceding claims and also comprising at least one buffer for final stopping of vertical motion of said first and second rescue platforms.

5 22. A method for mass rescue comprising:

providing upper and lower rotatable supports having at least one elongate flexible element wound thereabout, said at least one elongate flexible element having at least first and second rescue platforms mounted at locations therealong arranged with respect to said upper and lower rotatable supports such that downward motion of said first rescue platform produces concomitant upward motion of said second rescue platform and vice versa;

10 providing dynamic resistance governing vertical motion of said at least one elongate flexible element with respect to said upper and lower rotatable supports; and

loading said first and second rescue platforms to different weights such that said first and second rescue platforms undergo upward and downward motion produced by gravitational acceleration and without requiring an external energy source.

23. A method according to claim 20 and also comprising:

20 providing at least one guiding element which is operative to guide said first and second rescue platforms; and

mounting said at least one guiding element onto a building.

24. A method according to either of claims 22 and 23 and also comprising operating a brake assembly to enable vertical motion of at least one of said first and second rescue platforms.

25. A method according to claim 24 and also comprising operating said brake assembly to stop at least one of said first and second rescue platforms at a selectable level.

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26. A method according to any of claims 22 – 25 and also comprising:

prior to said providing a second rescue platform, providing at least one counter weight; and

loading said first platform to a lower weight than a weight of said counterweight such that downward gravitational motion of said counterweight results in upward motion
5 of said first platform.

27. A mass rescue system comprising:

an upper rotatable support;

a lower rotatable support disposed below said upper rotatable support;

10 at least one elongate flexible element wound about said upper and lower rotatable supports; and

a first rescue platform and a counterweight mounted on said at least one elongate flexible element at locations therealong arranged with respect to said upper and lower rotatable supports such that downward motion of said first rescue platform produces
15 concomitant upward motion of said counterweight and vice versa,

said first rescue platform having a weight, when loaded to at least a first predetermined extent, which is greater than a weight of said counterweight and thus being operative to undergo downward motion produced by gravitational acceleration, causing concomitant upward motion of said counterweight, and

20 said first rescue platform having a weight, when unloaded to at least a second predetermined extent, which is less than the weight of said counterweight and thus said counterweight is operative to undergo downward motion produced by gravitational acceleration, causing concomitant upward motion of said first rescue platform, when unloaded to at least a second predetermined extent.

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28. A mass rescue system according to claim 27 and wherein said counterweight comprises at least a second rescue platform having a weight, when unloaded to at least a second predetermined extent, which is less than the weight of said first rescue platform, when loaded to at least a third predetermined extent and thus said counterweight is
30 operative to undergo downward motion produced by gravitational acceleration, causing

concomitant upward motion of said first rescue platform, when unloaded to at least a second predetermined extent.

29. A mass rescue system according to either of claims 27 and 28 and also comprising
5 a dynamic resistance device operative to employ potential energy of said first rescue platform for braking downward motion thereof.

30. A mass rescue system according to any of claims 27 – 29 and wherein said at least
10 one elongate flexible element comprises at least one first elongate flexible element which is wound over said upper rotatable support and at least one second elongate flexible element which is wound under said lower rotatable support.

31. A mass rescue system according to any of claims 27 – 29 and wherein said at least
15 one elongate flexible element comprises a looped elongate element.

32. A mass rescue system according to any of claims 27 – 31 and also comprising at
least one guiding element, which is operative to guide said first rescue platform and said counterweight.

20 33. A mass rescue system according to claim 32 and wherein said at least one guiding element comprises at least one rigid element.

34. A mass rescue system according to claim 32 and wherein said at least one guiding
25 element comprises at least one elongate flexible element.

35. A mass rescue system according to any of the preceding claims 27 – 34 and
wherein said first rescue platform comprises a cabin.

36. A mass rescue system according to any of claims 32 – 35 and wherein said first
30 rescue platform includes at least one guide assembly which rides along said at least one

guiding element and which is operative to reduce transverse displacement of said first rescue platform.

37. A mass rescue system according to any of claims 27 – 36 and wherein said first
5 rescue platform also comprises a safety assembly operative to prevent free-fall of said first rescue platform.

38. A mass rescue system according to any of claims 27 – 37 and also comprising at
10 least one stair unit associated with said first rescue platform.

39. A mass rescue system according to any of claims 27 – 38 and wherein said first
rescue platform also comprises at least one door and at least one door safety element
operative to prevent vertical motion of said first rescue platform while said at least one
door is open.

40. A mass rescue system according to any of claims 27 – 39 and wherein said first
15 rescue platform also comprises at least one of a first aid kit and a communications device.

41. A mass rescue system according to any of claims 29 – 40 and wherein said
20 dynamic resistance device is operative to slow vertical motion of said first rescue platform to a speed which is less than a predetermined speed.

42. A mass rescue system according to any of claims 29 – 41 and wherein said
dynamic resistance device also comprises a reducing gearbox and a fan descender which
25 are operative to slow the vertical motion of said first rescue platform.

43. A mass rescue system according to claim 42 and wherein said dynamic resistance
device also comprises a position dependent gear controller operative to control the gear
ratio of said reducing gearbox as a function of a vertical position of said first rescue
30 platform.

44. A mass rescue system according to claim 43 and wherein said dynamic resistance device also comprises a visually sensible position indicator associated with said position dependent gear controller.
- 5 45. A mass rescue system according to any of claims 29 – 44 and wherein said dynamic resistance device also comprises a mechanical brake assembly operative, when in a first position, to prevent vertical motion of said first rescue platform.
46. A mass rescue system according to claim 45 and wherein said mechanical brake
10 assembly also comprises a handle which is selectably movable between said first position and a second position to enable a user to selectably operate said system.
47. A mass rescue system according to any of claims 27 – 46 and also comprising at least one buffer for final stopping of vertical motion of said first rescue platform.
- 15 48. A method for mass rescue comprising:
providing upper and lower rotatable supports having at least one elongate flexible element wound thererabout, said at least one elongate flexible element having a first rescue platform and a counterweight mounted at locations therealong arranged with
20 respect to said upper and lower rotatable supports such that downward motion of said first rescue platform produces concomitant upward motion of said counterweight and vice versa;
providing dynamic resistance governing vertical motion of said at least one elongate flexible element with respect to said upper and lower rotatable supports; and
25 loading said first rescue platform to a first predetermined extent, such that it has a first weight which is greater than a weight of said counterweight, such that said first rescue platform undergoes downward motion produced by gravitational acceleration, causing concomitant upward motion of said counterweight; and
unloading said first rescue platform to at least a second predetermined extent,
30 such that it has a second weight which is less than the weight of said counterweight and thus said counterweight is operative to undergo downward motion produced by

gravitational acceleration, causing concomitant upward motion of said first rescue platform.

49. A method according to claim 48 and wherein said counterweight comprises at least a second rescue platform having a weight, when unloaded to at least a second predetermined extent, which is less than the weight of said first rescue platform, when loaded to at least a third predetermined extent and thus said counterweight is operative to undergo downward motion produced by gravitational acceleration, causing concomitant upward motion of said first rescue platform, when unloaded to at least a second predetermined extent.

50. A method according to either of claims 48 and 49 and also comprising:
providing at least one guiding element which is operative to guide said first rescue platform; and
mounting said at least one guiding element onto a building.

51. A method according any of claims 48 – 50 and also comprising operating a brake assembly to enable vertical motion of said first rescue platform.

52. A method according to claim 51 and also comprising operating said brake assembly to stop said first rescue platform at a selectable level.